REMARKS

Applicants respectfully request reconsideration and allowance of the present application based on the foregoing amendments and the following remarks. Claims 1-22 are pending in the application, with claims 8-9 and 12-18 having been withdrawn from consideration.

Claim Rejections under 35 USC § 103

Claims 1-7, 10-11 and 19-22 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,263,299 to Aleshin et al. ("Aleshin") in view of U.S. Patent Pub. No. 2002/0062206 to Liebchen ("Liebchen"). For reasons more fully set forth below, this rejection is respectfully traversed.

Applicants restate and incorporate the remarks in their previous response to these rejections. The new detailed comments in the Final Office Action will be specifically addressed below.

Independent claims 1 and 10 require, inter alia:

> representing at least one resolvable feature of a mask to be printed on the substrate by at least one impulse function; and
> creating an interference map based on the at least one impulse function and the TCC function, wherein the interference map represents the at least one resolvable feature to be printed on the substrate and areas of destructive interference.

Applicants' previous response demonstrated that Aleshin does not disclose or suggest representing its "transmissive portions" or "primitive elements" as impulse functions as required by the claims.

In response to these arguments, the Final Office Action states that:

> Aleshin teaches mask data is utilized by the aerial simulation technique disclosed in col. 5, as evidenced by FIG. 2: element 44. This data includes points where the pattern will appear on the chip and points where no pattern will appear on the chip (Col. 3, lines 59-62). The points where the pattern will appear on the chip are resolvable features and are represented with an amplitude of one, i.e., impulse response; whereas points where no

pattern will appear are represented with an amplitude of zero (Col. 3, lines 59-62).

Applicants submit that the Final Office Action misinterprets Aleshin's actual teachings.

Col. 5 of Aleshin merely describes how conventional Hopkins analysis can simulate how a point source in a mask plane is imaged onto a plane of the resist. It speaks nothing of how to represent a resolvable feature in a mask, much less using an impulse function as required the claims. In Col. 5, Aleshin does mention that Hopkins analysis includes using a coherent implulse response function of the optical system. But those skilled in the art recognize that a feature in a mask is not in any way equivalent to a response function of an optical system. Moreover, those skilled in the art understand the profound differences between an impulse function and an impulse response function.

Col. 3 merely mentions that a mask pattern can include points wherein the points have an amplitude of one where a pattern appears and an amplitude of zero where no pattern appears. Aleshin does not expressly or inherently disclose or suggest here that a pattern in a mask can be represented by an impulse function. Rather, those skilled in the art will understand that a pattern will be represented by a plurality of generally contiguous points bounded by vertex points.

More particularly, Aleshin expressly teaches in col. 11 that mask patterns are decomposed into polygons or rectangles bounded by vertices (i.e. points) in the mask plane for use in aerial image simulation. For example, Aleshin teaches that rectangles of features in the mask plane are defined by edges having coordinates x1, x2, y1, y2, where $x1<x2$ and $y1<y2$. Accordingly, Aleshin expressly teaches that features are represented by one or more rectangles or polygons each having at least four points in the mask plane. This rectangular/polygon representation of a feature is used in the subsequent equations 4, 6 and 7 in cols. 11 and 12 for aerial image simulation. Rectangles and polygons are clearly different from impulse functions.

Aleshin also does not explicitly disclose or suggest anything about the claimed step of creating an interference map that, among other things, represents "areas of destructive interference". Applicants' previous response demonstrated that the previous Office Action correctly failed to identify any such teaching in Aleshin.

The Final Office Action responded that Aleshin's aerial image "represents the printability of resolvable features in terms of areas of light intensity distributions." This merely refers to how resolvable features are imaged on a substrate. Meanwhile, the claims clearly require that the interference map represents the at least one resolvable feature to be printed on the substrate **and** areas of destructive interference. Accordingly, the claimed areas of destructive interference are distinct and in addition to the image of the resolvable feature. Aleshin does not disclose or suggest generating a map of how anything else besides the resolvable features will appear at the substrate plane.

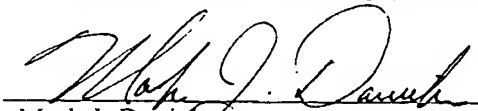
For at least these reasons, independent claims 1 and 10 patentably define over the cited prior art, and the 103 rejection of the claims should be withdrawn.

Conclusion

All objections and rejections having been addressed, it is believed that the claims are in condition for allowance, and Notice to that effect is earnestly solicited. If any issues remain which the Examiner feels may be resolved through a telephone interview, s/he is kindly requested to contact the undersigned at the telephone number listed below.

Respectfully submitted,
PILLSBURY WINTHROP SHAW PITTMAN LLP

Date: 12-02-08



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